

REMARKS

The subject application is a continuation application of parent application Serial No. 08/425,958 filed on April 19, 1995, now U.S. Patent No. 6,008,296. In the parent application conflicting subject matter was indicated with U.S. Patent No. 5,736,609 ('609) issued April 7, 1998 to Irizato et al. and assigned to Mitsui Toatsu Chemicals, Inc. To overcome said conflicting claims, the claims in the parent application were amended to specifically exclude the type of polythiol monomer defined and claimed in the '609 patent.

Applicants have filed the subject application to copy all the claims of the '609 patent and the claims 23-58 added in the Preliminary Amendment for the subject application correspond exactly to claims 1-36 of the '609 patent. Further, the original claims 1-22 of the parent application were continued in the subject continuation application and after amendment are now claims 1-16-135.

Regarding the rejection of claims 59-63 and 65-79 (now 116-135) under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,008,296, it is respectfully submitted that Applicants will file a Terminal Disclaimer when allowable subject matter is indicated.

Claims 59-63, 67-69, 75, and 77 (now 116-135) are rejected under 35 USC 102(b) as being anticipated by Goyert et al. U.S. Patent No. 4,762,884. It is respectfully submitted that Goyert et al. produces an interpenetrating network type

polymer system containing two polymer fractions, each fraction being made by a separate polymerization reaction and is not directed to optically clear resins as in Applicants' terpolymer resin. Goyert et al. shows a mixture of a preferred thermoplastic polyurethane resin and an acrylate which is then cross-linked wherein the acrylic component reacts with itself resulting in a polymer network where no chemical bond is formed between the two polymeric components. Accordingly, Goyert et al., if anything, forms a polyurethane polymer chain link having attached thereto polythio ether links. Again, Goyert et al. forms an interpenetrating polymer system in two separate steps by two separate chemical polymerization reactions. Applicants have amended the claims (in new claims 116-135) to distinguish the claimed composition and process from the polymers of Goyert et al. and it is respectfully submitted that the claims are properly allowable over Goyert et al. Note that the claims now "correspond" to Applicants' U.S. Patent No. 6,008,296 ~~terpolymer and exclude the Goyert et al. polymers.~~

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Claims 59-63 and 67-79 (now 116-135) have been rejected under 35 USC 103(a) as being unpatentable over Ohkawa U.S. Patent No. 5,236,967 in view of Kajimoto et al. U.S. Patent No. 4,689,387 or Kanemura et al. U.S. Patent No. 4,775,733 or Nagata et al. U.S. Patent No. 5,084,545.

Applicants' terpolymer as now claimed is different in both a technical aspect and patentability aspect from the polymer of the Ohkawa et al. reference. The Okawa patent reacts two components, to wit, a polythiol component with a polyene component to form thioether links in the polymer chain. While the polyene

component may be made by reacting a polyisocyanate with an active hydrogen containing compound containing unsaturation there is no reaction of a polythiol with a polyisocyanate as in Applicants' process. Accordingly, the Ohkawa et al. patent merely forms a copolymer having thioether links and is not a terpolymer. The Ohkawa patent is therefore completely different from the random terpolymer of Applicants' wherein blocks of thioether and blocks of thiourethane links are present along the terpolymer chain. It should also be appreciated that the Ohkawa et al. reaction mixture of two monomers is completely different from Applicants' reaction mixture of three different monomers and that a different reaction occur during the polymerization reaction. Again, there is no reaction of a polyisocyanate group with a polythiol group.

The secondary references to Kajimoto et al., Kanemura et al. and Nagata et al. all disclose production of optical lenses by the reaction of a polyisocyanate with a thiol containing reactant. There is no disclosure therein, however, to form terpolymers by reacting said monomers with polyenes. It is respectfully submitted that it would not be obvious to add a polyene to the secondary reference reaction mixture and/or to add a polyisocyanate to the Ohkawa et al. reaction mixture.

Applicants have amended the claims (now claims 116-135) to define the resin formed as being a homogeneous terpolymer having a single glass transition temperature, no phase separation and which is optically clear which it is respectfully submitted distinguishes over the cited combination of references.

Claims 23-58 and 80-115 have been rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor at the time that the application was filed had possession of the claimed invention. Specifically, the Examiner contends that we do not show support for the range of polythiol compounds represented by formula 1 in claims 23, 27 and 55. Further, it is also contended that clear support has not been found for the terminology "neither a hydroxyl group nor a mercapto group" in claims 23, 27 and 55. Lastly, it is also contended that support is has not been found for the ratio range of claims 26 and 30. It is respectfully submitted that claims 23-58 and 80-115 have support in the specification under 35 USC, 112, first paragraph.

The subject invention is based on the discovery of forming optical polymers by reacting polythiols, polyenes and polyisocyanates. The '609 patent reacts these monomers as does the subject patent application. The required polythiol of the '609 patent while providing a formula (Formula 1) which shows a wide variety of polythiols, encompasses a specific polythiol disclosed by Applicants. Likewise, the '609 patent claims a polyene which does not contain a hydroxy group or a mercapto group. Applicants' application also discloses such a polyene. The '609 patent claims that hydroxy containing polythiols may be used in a mixture with a polythiol. Applicants' application likewise discloses such polythiol mixtures. A ratio of functional groups is disclosed in both the '609 patent and the subject patent application.

Specifically, with regard to formula (1) of the Irizato et al. patent, the formula requires at least two (2) mercapto groups in the compound and one of the polythiol monomers identified in the application is 1,2,3-propanetrithiol. This compound falls within formula (1) of the Irizato et al. patent and shows that such polythiols as claimed in Irizato et al. are contemplated in the subject patent application. Both Irizato et al. and the subject patent application are directed to an optical terpolymer in which one of the monomers reacted is a polythiol and a specific polythiol disclosed in the subject application is covered by the claimed formula (1) of Irizato et al.

Likewise, with regard to the compound having neither a hydroxyl group nor a mercapto group, in the specification there was disclosed a number of polyene compounds which do not contain a hydroxyl group nor a mercapto group. Specifically, 1,6-hexane-diacrylate or dimethacrylate and pentaerythritol triacrylate or trimethacrylate and pentaerythritol tetraacrylate or tetramethacrylate. Accordingly, a number of compounds are disclosed which encompass polyenes containing neither a hydroxyl group nor a mercapto group.

With regard to the ratio range of claims 26 and 30, the Irizato et al. patent requires a molar ratio of the iso(thio)cyanate group plus the reactive unsaturated group to the mercapto group plus the hydroxyl group being in the range of 1.0 to 3.0. On page 11, column 13-20 of the subject application the proportion of the monomers are indicated to range widely depending on the polymer properties desired. The ratio of NCO or NCS groups and vinyl groups to -SH groups is preferably in the range of

1.05 to 2.0. It is respectfully submitted that this disclosure in the application corresponds to the claimed ranges in the Irizato et al. patent.

The Examiner also contends that there is inadequate support in the disclosure and cites in particular that the single species, 1,2,3-propanetriol, is insufficient to provide support for all compounds encompassed by claimed formula (1) in claims 80-115.

Applicants agree that the claims which that party presents for the purpose of interference must be supported by his disclosure and allowable therein. *In re Ziegler et al.* (CCPA 1966) 150 USPQ 551. It is believed that the interference practice is now that an Applicant can contest the generic claim embracing many species on the basis of a single species thereof. *Utter v. Hiraga* (CAFC 1988) 6 USPQ 2<sup>nd</sup> 1709. It is also the law that the subject matter of a count of an interference may be either expressly or inherently disclosed in the application whose filing date is relied upon or a date of invention. *Brand v. Thomas* (CCPA 1938) 37 USPQ 505. If the disclosure is inherent, it is sufficient if it shows that the natural result flowing from the operation taught would result in the performance of the invention. *Hansgirg v. Kemmer* (CCPA 1939) 40 USPQ 665. The compounds of the count need not be named if the description therein would lead one of ordinary skill thereto. *Olson et al. v. Julian et al.* (BOPI 1979) 209 USPQ 159. All that is required is that one skilled in the art could, from the disclosure, practice the invention. *Santini et al. v. Burgy et al.* (CCPA 1963) 137 USPQ 785. A parent application, in order to support a count, need only contain some form of a written description of a single embodiment of the invention.

*Suh v. Hoefle* (BPAI 1991) 23 USPQ 2<sup>nd</sup> 1321. It is also established law that an Applicant need not know at the time of filing of his parent application that a compound disclosed therein actually was one embraced by the count. *Sulkowski v. Metlesics et al. v. Houlihan* (BOPI 1973) 179 USPQ 687.

In summary, it is respectfully submitted that there is support for copied claims 23-58 and claims 80-115 directed to a specific polythiol compound in the subject application and it is respectfully submitted that an interference be declared.

In summary, it is respectfully submitted that Applicants' invention comprising a three monomer system in which the three monomers react in a single polymerization reaction and form a terpolymer having blocks and links of thioether and thiourethane groups is patentable over the references.

Accordingly, Applicants respectfully request declaration of an interference with Irizato et al. U.S. Patent No. 5,736,609 and/or allowance of claims 116-135.

Respectfully submitted,

  
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